

Green Infrastructure Planning in the Black Country: *Barrow Hill LNR and Russells Hall Hospital, Dudley*

CASE STUDY



Prepared by



**The Wildlife Trust
for Birmingham and
The Black Country**

On behalf of



West Midlands Conservancy

February 2008

Acknowledgements

The study was carried out by the Wildlife Trust for Birmingham and the Black Country on behalf of the Forestry Commission West Midlands Conservancy.

Thanks are due to Simon West and Bill Heslegrave at the Forestry Commission for their guidance throughout the study.

We would also like to thank Paul Hancox and Kevin Clements at Dudley Council who have been responsible for managing the site and implementing the project. We are also very grateful to Paul Davies-Hale of the Action Heart initiative at Russells Hall Hospital who took his time to explain the benefits that heart patients derive from using the site.

1 INTRODUCTION

Brief

- 1.1 The Wildlife Trust for Birmingham and The Black Country (BBCWT) was commissioned by the Forestry Commission in the summer of 2007 to carry out a case study profiling a working example of *green infrastructure planning* (GI) in the Black Country.
- 1.2 It was agreed that research would be undertaken in order to present a case study featuring the successful approach employed to green space management at the complex of sites incorporating Fens Pools and Buck pool Local Nature Reserve (LNR), Barrow Hill LNR (from hereon referred to collectively as Barrow Hill) in Dudley. The research was also undertaken to highlight the potential that exists within the Black Country for green infrastructure planning and also to demonstrate the benefits that could be derived from implementing the approach.

Green Infrastructure Planning

- 1.3 Green infrastructure is a term that is appearing more frequently in conservation and urban planning, development and policy discussions. The term itself can mean different things to different people depending on the context in which it is used. For example some people will refer to trees in urban areas as green infrastructure because of the 'green' benefits they provide, while others use green infrastructure to refer to engineered structures such as green roofs that are designed to be environmentally friendly. For purposes of this study green infrastructure is defined as *an interconnected network of green space that conserves natural ecosystem values and functions and provides associated benefits to human populations*. It is the network of green spaces and natural elements that intersperse and connect our cities, towns and villages. It is the open spaces, waterways, gardens, woodlands, green corridors, wildlife habitats, street trees, natural heritage and open countryside.
- 1.4 Green infrastructure is important because it provides multiple benefits for the economy, the environment and people. Just like the built or 'grey' infrastructure, the green infrastructure should be carefully planned, designed and invested in far in advance of development. Although green space is often viewed as something that is 'nice' to have, the term Green Infrastructure implies something that we must have and must be actively maintained and, if necessary, restored. Green infrastructure is essential for sustainable communities providing liveability for present and future generations.

2 BARROW HILL LNR: 'THE DUDLEY VOLCANO'

Overview and site description

- 2.1 Barrow Hill, in Pensnett, Dudley, is designated as a Site of Importance for Nature Conservation (SINC). Barrow Hill is notable for its richness of wildlife and habitats, and significant geological and archaeological features. Together with outstanding views, Barrow Hill boasts a large and diverse area of grassland, ponds, ancient woodland, populations of Great Crested Newt and other important habitats and species. The area is thus of high recreational and amenity value for local people.
- 2.2 The site is bounded by Himley Road and Coopers Bank Road to the north and by Pensnett High Street to the south. The recently constructed walkway along the

disused mineral railway forms the western boundary, and Merryfield Road and a well-used public footpath run down the eastern edge. Access is from several points along the footpath or walkway, or via Vicarage Lane and Hunts Mill Drive. It is also linked to both the Fens Pools and the Staffordshire countryside through the Pensnett Railway walk.

2.3 There are several points of interest on Barrow Hill:

Point of interest	Description
Barrow Hill Incline	The summit of Barrow Hill rises to 152m above sea level. This provides a vantage point for panoramic views of the surrounding landscape that includes the Staffordshire countryside, The Wrekin, The Clent Hills & The Brown Clee in Shropshire.
Barrow Hill Copse	A small area of woodland with rich ground flora.
Disused Quarry	This is where evidence of Barrow Hill's volcanic past is found.
Grazed fields	Tree lined and acts as an important wildlife corridor.
Ponds	Sited on open scrubland and are ideal amphibian habitats. Formed when water was being pumped from the mines.
Disused Railway Line	Forms the path that cuts across the site. Passes closely to the pump house chimney and further along the site of Hunt's Mill.
Hay Meadow	Ancient hay meadow that supports a number of grasses and a good range of broadleaved plants.
Tansey Green Clay pit	Privately owned and worked until recently, Tansey Green has a history of coal and clay extraction. Beneath it are hidden the world's oldest perfectly preserved conifer fossils, buried by the ash from the Barrow Hill volcano.
Pensnett Chase	An area of ancient woodland with mature oak, sycamore, ash and beech.

The Dudley Volcano – history

2.4 Barrow Hill is made of a dome shaped mass of dolerite, a hard rock formed underneath what was once the Dudley volcano. About 315 million years ago, this area lay at the southern edge of a vast tropical river delta swamp, and the sediments deposited in the swamps formed the coal measures that fuelled the industrial revolution. Earth movements uplifted land to the south and the swamps gave way to a well-drained floodplain. During this new phase the clays, which were very important locally for brick-making, were formed.

2.5 Faulting in the Earth's crust allowed magma to intrude the buried sediments. At Barrow Hill, surges of ash and lava erupted from a volcano. Conifers growing on the slopes of the volcano were buried by a gentle, but rapid ash deposit that preserved them in situ. The heat charred the outer bark, but the internal structure has been well preserved, making them the oldest three-dimensional conifers yet discovered in the world. Erosion of the softer rocks that covered the volcano's magma chamber has left much harder dolerite standing proud as the hill we see today. Although relatively small, the outcrop was quarried for road stone in the 19th Century. After aggregate extraction ceased the site lapsed into neglect, and scrub encroachment meant that the quarry faces and the site as a whole became inaccessible to the public.

3 IMPROVING THE SITE: DEALING WITH THE CHALLENGES

3.1 In 2001 in order to give the Dudley volcano a new lease of life, Dudley MBC together with key stakeholders and other statutory agencies came together and drew up plans to improve the site.

Wildspace! Grant Scheme for Local Nature Reserves

3.2 With the *Wildspace!* Grant from Natural England Dudley MBC was able employ a Community Liaison Officer to work with local people to encourage an active interest in using the site and improving its nature conservation value. This was initiated by working with existing conservation groups/initiatives to increase participation and awareness. Local schools were encouraged to participate and learn about conservation issues through activities such as pond dipping, through the installation of bird and bat boxes and through educational material and events. The project also managed to produce leaflets, organized guided walks and events and supported the local friends of group. Work was also undertaken to improve access. This project ran from 2001 to 2005.

Aggregates Levy Sustainability Fund (ALSF)

3.3 With the ALSF grant from Natural England the Black Country Geological Society was able to implement a site management plan, and improve the site’s geological value by removing scrub to allow the public to enjoy the volcanic features. This funding was available in 2004/5. As a result of the improved access at the site, Barrow Hill was declared a Local Nature Reserve in 2005. Way marked walking routes were developed around the site, with the help of the Action Heart Walking for Life scheme. These routes were originally set up to cater for ex-cardiac patients at the adjacent Russell Hall hospital, but they now attract many members of the public who can enjoy the site and the healthy exercise.

3.4 In line with the Local Biodiversity Action Plan (LBAP) habitat management was carried through restorative management of the rich natural grassland and ancient woodland and enhancing habitats for great crested newt. These improvements helped in Barrow Hill being declared a Local Nature Reserve in order to preserve its wildlife and geology.

4 Green Infrastructure benefits delivered

4.1 The improvements highlighted above have helped reaffirm Barrow Hill’s status as a prime greenspace in Dudley. Although these improvements were not undertaken under a specific Green Infrastructure Planning framework, they however offer an opportunity for demonstrating the potential benefits of a GI approach to conservation. Central to the GI approach is the idea of delivering multiple benefits. The Barrow Hill case study has been able to deliver many benefits as shown in the following table:

Benefits	Description
Social	<ul style="list-style-type: none"> • Space for people to socialize. • Health & well being – Action Heart initiative. • Creation of a sense of community. • Opportunities for community involvement e.g. Barrow Hill Friends Group. • Active recreation e.g. walking, cycling. • Environmental education e.g. UKRIGGS Earth Science Project &

Benefits	Description
	Geological and other leaflets.
Economic	<ul style="list-style-type: none"> • Employment – Community Liaison Officers. • Income form visitor centre & kiosk. • Geotechnical Assessment & Options study produced – will provide basis for further improvements. • Partnership between BCGS and Local Authority. • Contribution towards Black Country regeneration.
Environmental	<ul style="list-style-type: none"> • Declaration of LNR. • Preservation of bio & geo diversity. • Development of management plan. • Ancient Woodland management.

4.2 Besides the more direct benefits, the case study also supports and compliments other regional initiatives like the Regional Forestry Framework. The vision of the Regional Forestry Framework is to create woodlands and a sector that maximizes sustainable development through delivery of economic, environmental, cultural and social benefits. The Barrow Hill case study certainly supports that notion of multi benefit delivery.

What have been the key ingredients?

4.3 *Action Heart* in Dudley is the UK's leading cardiac rehabilitation programme. The programme is all about exercise and lifestyle management and it actively encourages walking as an affordable and safe way to improve health and fitness. The attractive way marked walking route around Barrow Hill has become the centre of the *Walking for Life* scheme in Dudley. The use of Barrow Hill to promote health and well-being has worked well because of two key reasons: first, the partnership that was created between Dudley MBC, Dudley PCT (Russells Hall Hospital), Natural England, Black Country Geological Society and other key stakeholders has enabled resources to be made available and for the innovativeness that has led to multi benefits being delivered. Secondly, the proximity of Russells Hall Hospital also offered a unique opportunity for cardiac patients to access the natural greenspace available. The medical staff and cardiac consultants at Russells Hall Hospital who are said to be keen on exercises also added to the mix, making it possible for Barrow Hill to be used as a *Walking for Life* site.

4.4 One of the key ingredients that has been raised through discussions with the key partners in the project is the fact that the project has been allowed to develop organically and has not been imposed from outside. From the initial discussions in 2001 the project has been implemented in a way that has enabled its implementation to be adaptive and allowing project personnel to learn from the initial failures. Being adaptive has also helped create the right conditions for innovativeness that perhaps led to the partnership with Action Heart.

5 CONCLUSIONS

5.1 This case study highlights the need for a more strategic approach, framework and delivery program for Green Infrastructure Planning in the Black Country. It should be looked at in the context of the Black Country and its aspiration for environmental transformation. Green Infrastructure Planning will be key for the delivery of the BCUP and the realization of the 30 year vision to transform the Black Country.

- 5.2 Green Infrastructure Planning offers a unique opportunity for green spaces and conservation to be at the fore of all development initiatives. Through Green Infrastructure Planning green spaces can be accorded the same importance as other forms of infrastructure, and hopefully that can also help in attracting the necessary funding and resources. Case Studies like these offer opportunities where tools like the Public Benefit Recording System (PBRS) can be used as an approach to assist the social, economic and environment sectors to work together and establish new understanding and approaches.
- 5.3 Using a green infrastructure approach to conservation adds value to greenspaces. Over the course of 5 years more £30,000.00 was invested directly into site improvements on Barrow Hill LNR. Excluding other overhead expenses the figure signifies an important investment on a local nature reserve. This also helps to encourage local communities to access and use the greenspace. During the study it was observed that the initial health motives that encouraged people to use the site soon developed into a long term interest in nature, and this have been very crucial in maintaining a steady number of local people using the site.

6 Links and further information

Details	Download / website
Green Infrastructure Planning: A prospectus for the West Midlands Region. Produced by TEP & Alison Millward Associates in 2007 on behalf of the West Midland Regional Assembly Environment Partnership. Sponsored by the Forestry Commission & Natural England.	http://www.growingourfuture.org/wmwff/taskgroups/gip/prospectus.pdf
Green Infrastructure for the West Midlands Region: Technical Mapping Paper. A guide to the spatial mapping and assessment of Green Infrastructure for public and wildlife benefit (2007). Report for the West Midlands Regional Assembly by TEP.	
Green Infrastructure and the Urban Fringe: Learning Lessons from the Countryside in and Around Towns programme. (2007) Natural England.	http://www.countryside.gov.uk/Images/Green_Infra_and_Urban_Fringe_tcm2-31645.pdf
Aggregate Levy Sustainability Fund: Review of the Grant Scheme 1 April 2002 – 31 March 2005. (2006) English Nature.	http://naturalengland.twoten.com/naturalenglandshop/docs/Corp2.4.pdf
Green Infrastructure for Sustainable Communities. (2005) Sponsored by Environment Agency, The Countryside Agency, English Nature, River Rene Regional Park & English Heritage	http://www.culturesoutheast.org.uk/media/uploads/18/4%20Pager.pdf
Planning Sustainable Communities: A Green Infrastructure Guide for Milton Keynes and the South Midlands. (2005) Produced by Environment Agency, The Countryside Agency, English Nature, River Rene Regional Park, English Heritage &	http://publications.environment-agency.gov.uk/pdf/GeAN0305BIWY-e-e.pdf

others	
Benedict, M.A & E.T McMahon (undated) Green Infrastructure: Smart Conservation for the 21st Century. The Conservation Fund. Sprawl Watch Clearing House Monograph Series. Downloadable from	http://www.sprawlwatch.org/greeninfrastructure.pdf
The Green Infrastructure of Sustainable Communities. England's Community Forests making the difference	http://www.communityforest.org.uk/resources/ECF_GI_Report.pdf
Public Benefit Recording System	http://www.pbrs.org.uk/